

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for designing a low drag vehicle comprising:
determining at least two vehicle configurations a plurality of configurations for at least two different Mach numbers that minimize the rate of change of second derivatives along of cross-sectional area distributions of the vehicle configurations, wherein at least one of the vehicle configurations is determined at a Mach number and a roll angle that is different than the other of the at least two vehicle configurations;

determining second derivative curves of the cross-sectional area distributions of the vehicle configurations;

applying weighting factors to the second derivative curves to form weighted second derivative curves;

determining the average of the weighted second derivative curves; and

smoothing the average of the weighted second derivative curves to form a smoothed average second derivative curve, averaging the configurations to determine a final configuration.

2. (Currently amended) The method according to Claim 1 further comprising:
optimizing the configuration for cross-sectional areas distributions obtained along Mach angle lines.

3. (Canceled)

4. (Currently amended) The method according to Claim 1 further comprising:
determining weighting factors for the at least two configurations based on the difference between thrust available and thrust required ~~weighting the configurations for the at least two Mach numbers.~~

5. (Currently amended) The method according to Claim 1 further comprising:

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integrating the ~~second derivative of the~~ smoothed average second derivative curve ~~cross-sectional area for the final configuration~~ to determine the cross-sectional area distribution for a final configuration.

6. (Currently amended) The method according to Claim 1 ~~3~~ wherein smoothing the average of the weighted second derivative curves ~~the second derivative of cross-sectional area~~ includes filtering the average of the weighted second derivative curves ~~the rate of change of cross-sectional area for the final configuration.~~

7. (Currently amended) The method according to Claim 1 further comprising: determining weighting factors for the ~~at least two~~ Mach numbers based on a percentage of time the vehicle is expected to operate at each Mach number during typical operational profiles.

8. (Currently amended) The method according to Claim 1 further comprising: determining weighting factors for the ~~at least two~~ Mach numbers based on at least one of the group of: minimized drag, minimized sonic boom disturbance, and minimized inlet flow distortion.

9. (Currently amended) The method according to Claim 1 ~~further comprising:~~ wherein smoothing the average of the weighted second derivative curves includes averaging the ~~values~~ value of a selected points point of ~~on the average of the weighted second derivative curves~~ ~~second derivative of the cross-sectional area with the points point before and points a point after the selected points point.~~

10. (Previously presented) The method according to Claim 1 wherein the vehicle is an aircraft.

11-26. (Canceled)

27. (New) The method according to Claim 1 wherein the at least two vehicle configurations are structurally fixed.

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